

INTERNATIONAL SEARCH REPORT

PC 03/04788

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C22C26/00 B22F7/06 B01J3/06 B24D3/06 E21B10/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C22C B22F B01J B24D E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 525 178 A (HALL DAVID R) 25 June 1985 (1985-06-25) column 1, line 3 - line 22; figures 2,3 column 4, line 52 - line 58 ---	1-10
X	US 5 697 994 A (PACKER SCOTT M ET AL) 16 December 1997 (1997-12-16)	1-10
Y	column 6, line 3 - line 32 ---	11-13
Y	DATABASE WPI Section Ch, Week 200170 Derwent Publications Ltd., London, GB; Class L02, AN 2001-609219 XP002269004 & JP 2001 187431 A (SUMITOMO ELECTRIC IND CO), 10 July 2001 (2001-07-10) abstract --- -/-	11



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Date of the actual completion of the international search

4 February 2004

Date of mailing of the international search report

13/02/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 960 643 A (LEMELSON JEROME H) 2 October 1990 (1990-10-02) column 3, line 52 - line 64; figure 1 -----	12, 13

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4525178	A	25-06-1985	AT 57484 T	15-11-1990
			DE 3580130 D1	22-11-1990
			EP 0169081 A2	22-01-1986
			IE 58767 B1	03-11-1993
			JP 1769535 C	30-06-1993
			JP 4056790 B	09-09-1992
			JP 61021974 A	30-01-1986
			US 4604106 A	05-08-1986
			US 4729440 A	08-03-1988
			ZA 8502536 A	29-01-1986
US 5697994	A	16-12-1997	EP 0825915 A1	04-03-1998
			JP 11505483 T	21-05-1999
			WO 9636465 A1	21-11-1996
			ZA 9603868 A	18-07-1997
JP 2001187431	A	10-07-2001	NONE	
US 4960643	A	02-10-1990	US 5456406 A	10-10-1995
			US 4974498 A	04-12-1990
			US 5096352 A	17-03-1992
			US 5040501 A	20-08-1991
			US 5067826 A	26-11-1991
			US 5255929 A	26-10-1993
			US 5132587 A	21-07-1992
			US 5288556 A	22-02-1994
			US 5284394 A	08-02-1994
			US 6083570 A	04-07-2000
			US 5332348 A	26-07-1994
			US 5360227 A	01-11-1994